

Construction of a three-story laboratory building

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Construction of a three-story laboratory building and adjacent sea-water pools which will give scientists unique facilities for experimental studies on all types of animals associated with the sea-- including man-- has begun on the campus of the University of California's Scripps Institution of Oceanography.

According to Dr. P. F. Scholander, Professor of Physiology at Scripps, the new laboratories and technical facilities, together with a planned ocean-going laboratory ship, will provide experimental biologists with the opportunity to apply their knowledge and skill to the many scientific problems which can be handled only by a well-equipped laboratory on the site of the natural habitat.

Dr. Scholander, who is also Director of Scripps' Physiological Research Laboratory, said the land-based laboratory is a basic supporting requirement if the laboratory ship is to be fully effective. Construction of a 133-foot laboratory ship, built especially for oceanographic research, is expected to begin later this year.

The laboratory building will be of reinforced concrete and concrete block. It was designed by Aetron, a division of Aerojet General of Covina, California. It will feature tinted glass windows and partial air-conditioning and will provide nearly 14,000 square feet of laboratory and office space. Completion of the \$350,000 building and pools is scheduled for next February. Contractor is Callahan Brothers of San Diego. Funds for construction were granted by the National Science Foundation.

The top floor of the laboratory building will be occupied by research workers from the Brain Research Institute of the University's Los Angeles campus. The two lower floors will be used for research in marine physiology. In addition to ordinary laboratory facilities, the building will house temperature-controlled wet laboratories with non-toxic sea water, a freeze laboratory, a biological pressure and hydraulics laboratory, mass spectrometer and tracer laboratories, and will provide much needed working space for visitors to the Scripps campus.

Adjacent to the laboratory building will be a special building for the machine shop, electronics shop, and filtration plant.

The pools will consist of a circular towing Pool, 77 feet in diameter, a smaller rectangular holding pool, and a rectangular behavioral pool. The water area of the towing pool will be 22 feet wide and seven feet deep. In the center of the pool building will be a laboratory, 55 feet in diameter, to house equipment which will complement projects in the pool.

Outstanding features of the pool will be a central observation laboratory and a towing beam with facilities for spinning the water at various speeds. The spinning will be accomplished, in part, by tangential jets and, in part, by attaching drag nets to the towing beam. Used in this alternate way, the water will free-wheel during the experimental period.

The pool will be fitted with viewing ports and will be surrounded by a narrow walkway.

Adjacent to the observation well of the towing pool, and under the same roof, will be a 3-foot wide channel for large animals such as porpoises, seals, and sharks. This channel opens into the towing tank through gates and

will be furnished with propeller drive so that it can serve also as an experimental flow chamber. It will have a large observation window along one side.

The behavioral pool will allow studies of vertebrate behavior including sonar acoustic orientation.

According to Dr. Scholander, one important objective of the laboratories and the pools is to provide a means of carrying out experiments and observations on man in the aquatic environment in a way which is not feasible in ordinary aquaria or the sea. It is also expected that substantial contributions will be made to an understanding of the physiology and life ways of marine organisms, from plankton and marine algae to large fishes, marine turtles, sea birds, porpoises, and sea lions.

Other objectives will be the calibration and development of underwater instruments, and the development of collecting gear for efficient exploration at great sea depths. With the use of the towing beam, studies can be made of the performance of the various recording devices that are towed behind oceanographic vessels, using the smaller instruments themselves and scale models of larger gear.

According to Dr. Scholander, the analysis of man in the sea will involve cardiovascular research in skin diving and human propulsion in water. Certain facets of the physiology of diving have been studied in some detail in animals but the physiology of human diving at the present time lags considerably behind.